STANDARDS CHANGES CATALOG (SCC)

SCC NUMBER: SCC # 152

CHANGE PROPOSAL TITLE: Compression Clarifications

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ORIGINATOR'S INTERNAL NUMBER:

AFFECTED DOCUMENT: MIL-STD-2045-47001C ~~and D~~

PRECEDENCE: Routine

RECOMMENDATIONS: Approve

RECORD OF PROCESSING

DATE:	ACTION:
5 Oct 03	Proposal/Work Item
12 Mar 04	Draft/Revision
30 Mar 04	Approved for 47001C

1. STATEMENT OF THE PROBLEM: The CNRWG attempted to clarify the compression algorithms used in the MIL-STD-2045-47001 Application Header several years ago. Unfortunately, the changes while correct are ambiguous and in fact may be incorrect.

2. PROBLEM ANALYSIS: During this past summer I had one of my summer hires code both the LZW (Unix compress) and LZ-77 (GZIP) compression algorithms. Implementing the algorithm makes your software incompatible with the Unix utilities GZIP and compress/uncompress. I believe the original intent was to specify GZIP and compress/uncompress compatible requirements. Both of these utilities add additional fields in addition to the core algorithm (LZW or LZ-77).

3. PROPOSED SOLUTION: Modify MIL-STD-2045-47001 to change the requirement from implementing the compression algorithms used by those two utilities to implement the compression algorithm to be compatible with GZIP and Unix compress/uncompress.

4. ALTERNATIVE SOLUTIONS: Leave as is and understand that MIL-STD-2045-47001 compression is incompatible with GZIP and Unix compress/uncompress because 47001 does not allow the extra fields required by the Unix utilities.

5. SYSTEM CHANGES REQUIRED: None.

6. CONFIGURATION ITEM DOCUMENTATION CHANGES: MIL-STD-2045-47001C ~~and D~~.

7. IMPACT ON INTEROPERABILITY: No impact.

8. IMPACT ON RELATED DOCUMENTS: None.

9. IMPLEMENTATION DATES: ~~MIL-STD-2045-47001C and D.~~Upon Approval.

10. OTHER CONSIDERATIONS: None.

11. REFERENCES: None.

12. Trouble Reports (TRs) ADDRESSED IN THIS SCC: None.

5.6.2 Data compression type.

The absence of this field signifies data compression is not used. When present, this field shall be a 2-bit binary codeword representing whether the message or messages contained in the User Data portion of the Application PDU have been Unix compressed using compress/uncompress (LZW algorithm) or compressed using ~~the gzip~~ GZIP(LZ-77 algorithm) ~~compression algorithm~~. TABLE III~~TABLE III~~ lists the Data Compression ~~algorithm~~ indicated by the Data Compression Type. When any type of optional data compression is indicated and multiple messages are present in the User Data portion of the Application PDU, all messages shall be compressed and each message shall be compressed independently of the other messages.

TABLE III. Data compression type codes

Code MSB-LSB	**Compression ~~Algorithm~~**	**Reference Compression Algorithm**
00 (0)	Unix compress/uncompress~~LZW~~	Lempel-Ziv-Welch Compression Algorithm, Welch 1984
01 (1)	~~gzip~~GZIP~~LZ 77~~	RFC 1951 and RFC 1952 (Lempel-Ziv Compression Algorithm, Lempel-Ziv 1977)
10-11 (2-3)	Undefined	

TABLE XXIX. MIL-STD-2045-47001C application header (Continued)

Item Number	Field Name	Reference	Status Tx Rx	Support Tx Rx	Notes
2.2.1	DATA COMPRESSION TYPE	5.6.2	O M	Yes ___ ___ No ___ ___	
2.2.1.a	~~LZW~~Unix compress/uncompress	5.5.6.2	2.2.1:O	Yes ___ ___ No ___ ___	
2.2.1.b	~~LZ-77~~GZIP	5.6.2	2.2.1:M	Yes ___ ___ No ___ ___	
2.3	GPI FOR G1 (ORIGINATOR ADDRESS GROUP)	5.5.3 5.6.3 5.7.2.1.2 5.7.2.2.1 5.7.4.2 5.7.4.6	M M	Yes ___ ___ No ___ ___	